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ABSTRACT

Rules of lexical derivation can be used to account for certain case-related regularities existing between Japanese non-potential verbs and the potential verbs derived from them. Lexical derivation analysis in comparison with a transformational approach is simpler; it requires less powerful rules and therefore makes a stronger claim; and it captures the native speaker's intuition that a particular potential-verb combination is a verb having its own cooccurrence possibilities but related to a corresponding non-potential verb in a predictable way. This paper discusses the lexical derivation approach and provides numerous examples of its use in the analysis of Japanese verbs and appropriate sentence structure. (Author/VM)

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Japanese Potentials, Pseudo-potentials, and Case[1]

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Introduction

1. Rules of lexical derivation can be used to account for certain case-related regularities existing between non-potential verbs and the potential verbs derived from them. Furthermore, verbs of the class to which wakaru 'understand' belongs have case-related characteristics similar to those of potential verbs.[2]

1.1. This lexical derivation treatment of the potential V's, though basically generative, differs from Kazuko Inoue's transformational generative one in her A Study of Japanese Syntax. She treats rare 'be able to' as the verb in a matrix sentence. Into this potential-V sentence a non-potential-V sentence is embedded by the application of transformational rules to form a V+rare combination; this she then analyzes as a succession of two verbs. Inoue's treatment and the one suggested here are alike in that both require reference to the verb type. However, in her rules the verb type is only a side condition on a transformation operating on several sentence types to do two things: (1) to derive a modified verb and (2) to modify the original sentence constituents. It is thus necessary for her to assume the existence of an underlying structure, such as an embedded sentence, which frequently leaves no traces in surface structure; she also must use several powerful transformational rules to reach the final correct outputs.

She treats the rare morpheme as a type of V itself; at no point does she indicate that the V+rare is just another type of V--a single unit of the same sort as other V's. Yet analysis which treats the V+rare combination as a type of V rather than as a combination of V+V corresponds more closely to a native speaker's intuition than her present analysis does. The main defects of her analysis, then are that the rules used are unnecessarily complex, unnecessarily powerful, and ad hoc.

1.2. A lexical derivation approach, though also based on the properties of the verb, treats the process directly as lexical derivation. Lexical derivation predicts from an existing verb the existence of a new verb having new case properties. This is simpler than the transformational approach, which treats the process only indirectly by a shuffling of the actants (NP's) occurring with the verb and the superficial addition of a rare morpheme.

In a lexical derivation analysis the cooccurrences of the actants with the rare potential verbs are simply a result of the new grammatical properties of the derived verb (this same type of analysis also applies to rare passives). The advantages of this

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analysis over a transformational one are (1) that it is simpler, (2) that it requires less powerful rules and therefore makes a stronger claim, and (3) that it captures the native speaker's intuition that a V+rare combination is simply a verb having its own coocurrence possibilities, but related to a corresponding non-rare verb in a predictable way. Stanley Starosta has already discussed these advantages at some length in 'Lexical Derivation in a Case Grammar' (Starosta 1971:84-6).

1.3. Roy A. Miller discusses the potentials as derived verbs; he evidently bases his evidence upon Bloch's analysis, which states that 'causative, passive, and potential verbs are derived by adding a GENERIC SUFFIX to the base of the underlying verb' (in Miller, ed. 1970:102). Miller says, 'Japanese verbs with very few exceptions also underlie three secondary formations which may be termed causative, passive, and potential...These secondary causative, passive, and potential verbs are rather unsatisfactorily treated in the traditional grammar under the category of verbal suffixes (jodōshi). They are actually individual lexical items derived by adding generic suffixes to the bases of the underlying verbs. In each generic category this suffix has alternate forms depending on the verb base which it follows.' (Miller 1967:332)

Potential V's from Transitive V's

2.1. Transitive verbs, such as kaku 'write', may occur with an AGENT actant marked with the [+NM] case marker postposition ga (but never marked with [+L] ni). An accompanying OBJECT actant may be marked with the [+O] case marker o.[3]

2.2. With the potential verbs that are derived from these non-potentials, this same OBJECT actant may be marked with [+NM] ga but never with [+O] o. Furthermore, the AGENT of the original transitive strings occurs with potentials in the (new) DATIVE case relationship; the DATIVE here may be marked by either [+NM] ga or [+L] ni (which is often followed by wa). This use of ni followed by wa with the DATIVE in potential strings avoids an ambiguous succession of ga's, one marking the DATIVE actant and the other marking the OBJECT actant, as in (2a) below. (The topic marker wa may occur, of course, in place of either of these ga's; with potential V's, if only wa's occur instead of ga's, either actant can be interpreted as DATIVE or OBJECT.) Examples of strings with the transitive kaku 'write' and its derived potential kakeru follow.

(1)

Taroo ga	hon o	kaita[4]
1	2	3
[+NM,+AGT]	[+O,+OBJ]	[+V,+trans]

'Taro wrote a book.'
1 3 2

(2a) Taroo ga hon ga kaketa
1 2 3
[+NM,+DAT] [+NM,+OBJ] [+V,+pot]
'In relation to Taro the ability to
1 1 3
write a book existed.'
3 2 3

(2b) Taroo ni (wa) hon ga kaketa
1 2 3
[+L,+DAT] [+NM,+OBJ] [+V,+pot]
'In relation to Taro the ability to
1 1 3
write a book existed.'
3 2 3

In these examples and certain others which follow, a (b) form of the potential-V string is given, which contains a DATIVE occurring with the case relationship marker ni and often the wa topic marker. With many verbs this usage of ni (wa) rather than ga appears to be acceptable primarily in situations wherein the personal capabilities of the DATIVE referent is implied or is being emphasized. These emphases have not been included in the English glosses suggested here. Also not indicated in these glosses are implications of 'external permission', which have been pointed out by Yutaka Kusanagi (personal communication); these implications may be the result of certain 'volitional' meanings inherent in the V's from which these potential V's are derived. Since the focus of this paper is upon the syntactic marking of the actants occurring with potential and other related V's, these and certain other related semantic points have not been investigated in depth here.

The ni wa combination illustrated in the (b) strings and the ga of the corresponding (a) strings mark the same (DATIVE) case relationship This DATIVE is a case relationship different from the case relationship marked by the ga of the 'original' strings which contain the non-potential V's from which the potential V's in both the (a) and (b) strings are derived. The case marker ni can never replace the ga in the non-potential V string; yet it may under certain circumstances replace ga in the potential strings. Therefore, both these case relationships and these ga's which mark them are shown to be not identical.

2.3. A DATIVE which occurs either with ni wa or simply with wa but not with ni alone, has been tentatively treated somewhat differently from 'normal' DATIVE's by this author, and is called the 'thematic' DATIVE, following Susumu Kuno in some respects (Taylor 1971:252, 414-6, and Kuno 1970:part II).[5] This thematic DATIVE is mentioned again in section 8, below, which deals with the writing of the potential derivation rules.

2.4. The English glosses given for (2a) and (2b), which tend

to emphasize the DATIVE, are similar to those chosen by Niwa. She states (for mieru, etc.) that 'the potential verbs are intransitive; they do not take objects. Rather than the meaning "I can see the mountains" the meaning is "the mountains are visible [to me]" ' (Niwa 1971:265). The glosses used here will also illustrate semantic and syntactic parallels to be pointed out later between these potentials-from-transitives and those non-potentials to be discussed in section 4.0 below.

2.5. Other transitive V's paired with derived potential V's include hairu 'enter' with haireru 'ability to enter exists', kau 'buy' with kaeru 'ability to buy exists', matu 'wait' with materu 'ability to wait exists', and yomu 'read' with yomeru 'ability to read exists'. As noted by Niwa, Jorden, and others, the potential V's, though derived from transitive V's, do not have the syntactic characteristics of transitive V's, but rather are syntactically more similar to intransitives.

(3) Transitive V string summarized

NP_1ga	+	NP_2o	+	Verb
AGENT		OBJECT		transitive

(4) Potential-from-transitive-V string (The subscripted NP's here refer to the 'same' NP's found in string 3, above.)

NP_1 {ga / ni}	+	NP_2 ga	+	Verb potential (derived from transitive V)
DATIVE		OBJECT		

In a string containing a potential V derived from a transitive V, the NP which was originally AGENT and marked by ga may occur as the DATIVE and will be marked by either ga or ni (wa); an original OBJECT marked by o may occur again as the OBJECT, but will be marked by ga.

Potential-V's from Non-transitive V's

3.1. From non-potential, non-transitive verbs such as sumu 'dwell' and kuru 'come', potential verbs can also be derived, such as sumeru 'ability to dwell exists' and korareru 'ability to come exists', respectively. Neither these non-transitive V's, nor the potential V's derived from them, ever occur with an AGENT actant. The former (i.e., the non-transitives) may occur with an OBJECT actant marked by [+NM] ga (but never with one marked by [+L] ni). The latter (i.e., the potential V's derived from non-transitive V's) never occur with an OBJECT actant. Instead, the OBJECT actant of the original non-transitive string occurs as the DATIVE actant of the derived potential string; for most of these derived poten-

tials, the DATIVE actant may be marked by either [+NM] ga or [+L] ni. Consider the following examples:

(5) Taroo ga (1) [+NM,+OBJ] koko ni (2) [+L,+LOC] sunda (3) [+V,-trans]
'Taro lived here.'
1 3 2

(6a) Taroo ga (1) [+NM,+DAT] koko ni (2) [+L,+LOC] sumeta (3) [+V,+pot]
'In relation to Taro the ability
1 1 3
to live here existed.'
3 2 3

(6b) Taroo ni (wa) (1) [+L,+DAT] koko ni (2) [+L,+LOC] sumeta (3) [+V,+pot]
'In relation to Taro the ability
1 1 3
to live here existed.'
3 2 3

Other similar non-transitive V's, paired with potential V's, derived from them, include hairu 'enter' and haireru 'ability to enter exists', iku 'go' and ikeru/ikareru 'ability to go exists', naku 'weep' and nakeru 'ability to weep exists', tatu 'stand up' and tateru 'ability to stand up exists', and yoru 'visit' and yoreru 'ability to visit exists'.

3.2. The strings which occur with these pairs of V's may be summarized in the following manner:

(7) Non-transitive-V string

NP_1 ga	+	Verb
OBJECT		non-transitive

(8) Potential-from-non-transitive-V string

NP_1 {ga / ni}	+	Verb potential (derived from non-transitive V)
DATIVE		

3.3. The DATIVE actant Taroo ga in example (2a) and (6a) has a syntactic relationship with the verb which is very different from the relationship of Taroo ga in either example (1) (where it is the AGENT) or example (5) (where it is the OBJECT); this difference can be demonstrated by attempting to substitute ni for this

ga in examples (1) and (5). The results are the unacceptable strings (1a) and (5a), respectively, which can never in normal, non-archaic conversational Japanese mean the same as examples (1) and (5).

(1a) *Taroo ni (wa) o kaita (this cannot mean 'Taro wrote a book'.)

(5a) *Taroo ni (wa) koko ni sunda (this cannot mean 'Taro lived here'.)

Location with Potential V's

4.1. There is another set of Japanese non-potential V's which, though not transitive, may occur with an actant marked by the [+O] o case marker postposition. These have been called 'movement' verbs here, and include verbs such as aruku 'walk', oriru 'climb down', oyogu 'swim', tooru 'pass along', and wataru 'cross over'. The bounded area within which the verbal activity occurs (the 'locus of motion' of Sasaki 1971:62) is specified by a LOCATION actant marked by the [+O] o case marker. For example:

(9) Taroo ga — hasi o — watatta
1 — 2 — 3
[+NM,+OBJ] — [+O,+LOC] — [+V,-trans]
'Taro crossed over on the bridge.'
1 3 — 3 2 — 2

The potential V's which are derived from these movement V's cooccur with the same case relationships and case members as do other derived potentials. In strings with a derived potential V, the 'original' o-marked LOCATION NP occurs in an OBJECT, not a LOCATION case relationship. This OBJECT-with-potential-V, like all other OBJECT's-with-potential-V, may be marked either by the [+L] case marker postposition ni (with or without wa) or by the [+NM] 'nominative' case marker postposition ga.[6]

4.2. Compare the potential V strings in the following examples with the non-potential V string in example (9) above.

(10a) Taroo ga — hasi ga — watàreta
1 — 2 — 3
[+NM,+DAT] — [+NM,+OBJ] — [+V,+pot]
'In relation to Taro the ability to cross over
1 — 1 — 3 — 3 — 3
on the bridge existed.'
2 — 2 — 3

(10b) Taroo ni (wa) hasi o watareta[7]
1 2 3
[+L,+DAT] [+O,+OBJ] [+V,+pot]
'In relation to Taro the ability to cross over
1 1 3 3 3
on the bridge existed.'
2 2 3

(10c) Taroo ni (wa) hasi ga watareta
1 2 3
[+L,+DAT] [+NM,+OBJ] [+V,+pot]
'In relation to Taro the ability to cross over
1 1 3 3 3
on the bridge existed.'
2 2 3

4.3. The movement-V strings can be summarized as follows:

(11) Non-transitive-movement-V string

NP_1ga + NP_2o + Verb
OBJECT LOCATION non-transitive, movement

(12) Potential-from-movement-V string

NP_1 {ga / ni} + NP_2ga + Verb
DATIVE OBJECT potential (derived from movement V)

4.4. The derived potential V's of a very few intransitive movement verbs do not completely fit the case pattern of other potential V's. These include toberu (from tobu 'fly'), agareru (from agaru 'go up'), and possibly others.[8] For these V's, the OBJECT NP can occur either with [+NM] ga (as do other potentials) or with [+O] o (an irregularity).[9] Examples (14b) and (14d), below, illustrate this irregularity; the regular [+NM] ga pattern occurs in (14a) and (14c).

(13) Sono pairotto ga tonneru o tonda
1 2 3 4
[+NM,+OBJ] [+O,+LOC] [+V,-trans]
'That pilot flew through the tunnel.'
1 2 4 3 3

(14a) Sono pairotto ga tonneru ga tobeta
1 2 3 4
[+NM,+DAT] [+NM,+OBJ] [+V,+pot]
'In relation to that pilot the ability to fly
2 1 2 4 4

through the tunnel existed.'
3 3 4

(14b) Sono pairotto ga tonneru o tobeta
1 2 3 4
[+NM, +DAT] [+O,+OBJ] [+V,+pot]
'In relation to that pilot the ability to fly
2 1 2 4 4
through the tunnel existed.'
3 3 4

(14c) Sono pairotto ni (wa) tonneru ga tobeta
1 2 3 4
[+L,+DAT] [+NM,+OBJ] [+V,+pot]
'In relation to that pilot the ability to fly
2 1 2 4 4
through the tunnel existed.'
3 3 4

(14d) Sono pairotto ni (wa) tonneru o tobeta
1 2 3 4
[+L,+DAT] [+O,+OBJ] [+V,+pot]
'In relation to that pilot the ability to fly
2 2 2 4 4
through the tunnel existed.'
3 3 4

4.5. Many of the native speakers questioned (all college educated) feel that this occurrence of [+O] o to mark the OBJECT actant with toberu and agereru is now more common than and is probably preferable to the use of [+NM] ga to mark this OBJECT. They also, however, indicated that they feel this to be a new, innovative use of the [+O] o and that [+NM] ga might somehow be more 'grammatical'. These same speakers have noted in the speech of other, less-educated speakers the occasional use of this same [+O] o with the potentials of other 'movement' V's, such as wataru, as in (10b), above.

4.6. The hasi ga and tonneru ga NP's in (10a) and (10c), and in (14a) and (14c), respectively, are analyzed as OBJECT actants and not as LOCATION actants on the basis of the following four independent but related data:

(1) If these actants were analyzed as LOCATION actants, they would represent the only occurrences of a subject-marker (i.e., [+NM] ga) with a LOCATION actant in Japanese. Japanese appears to limit its 'subject' to only AGENT, OBJECT, and DATIVE case relationships. (On the other hand, topicalization of case relationship actants with wa or mo--a different syntactic relationship--appears to be almost without restriction).

(2) The fact that some grammatically naive native speakers tend to use [+O] o (the 'normal' OBJECT-of-transitive-verb marking

postposition) here provides added evidence for the underlying psychological reality of the OBJECT case relationship of these particular subject actants.

(3) These same types of speakers also use the [+O] o to mark the OBJECT of the intransitive pseudo-potential V's (discussed in the following section). The OBJECT actants occurring with these pseudo-potential V's cannot be construed to be LOCATION rather than OBJECT actants.

(4) The verbs from which toberu and agareru are derived are grammatically innovative (unstable) in other respects, as already noted in footnote 8.

4.7. The following are summaries of the various movement-V strings:

(11,repeated) Non-transitive-movement-V string.

NP_1ga	+	NP_2o	+	Verb
OBJECT		LOCATION		non-transitive movement

(15) Exceptional potential-from-movement-V string

$NP_1\{ga/ni\}$	+	$NP_2\{o/ga\}$	+	Verb
DATIVE		OBJECT		potential (derived from tobu-type V)

'Pseudo-potential' V's

5.1. There are other Japanese non-transitive V's which form a set that can never be 'potentialized'. Their syntactic case characteristics are the same as those of the potential V's derived from transitive V's, but different from those of other potentials. These have been called 'pseudo-potential' V's here; they include at least the following: aru 'exist', dekiru 'ability exists', komaru 'trouble exists', niau 'resemblance exists', tariru 'sufficiency exists', tsukiau 'association exists', and wakaru 'understanding exists'.

5.2. The set of similarities between these pseudo-potential V's and the potential V's derived from transitives, and the fact that these pseudo-potentials cannot be 'potentialized' are two points which have not always been clearly stated by other writers.

Inoue, for one, does differentiate these verbs from all others in her statement that the subclasses to which they belong are 'not subject to the passive and potential embedding' (Inoue 1969: 32). Miller in the discussion cited earlier merely states that 'Japanese verbs with very few exceptions also underlie three secondary formations which may be termed causative, passive, and potential' (Miller 1967:332). Probably within his 'very few exceptions' he has meant to include verbs such as wakaru.

Jorden points out that there are parallels between potentials and 'intransitives', her verbs which do not occur with o; she does not mention that some non-transitives can be potentialized and others cannot: 'Although there is some variation, in the speech of most Japanese, potentials are intransitive--that is, their usage parallels that of wakaru "be clear"...in occurring with particles wa and ga but not o (direct object particle)' (Jorden 1963:98).

Bloch's discussion and examples, being purely descriptive, do not refer to the unacceptability of a potential form of wakaru and similar verbs (in Miller, ed. 1970:101-4). Martin omits reference to even the similarities pointed out by Jorden and, depending upon the reader's understanding of 'make into', perhaps misleadingly states: 'Any Japanese verb can be made into a potential verb' (Martin 1956:404). The ICU authors in their detailed illustration of forms which can indicate potentiality fail to warn students about these wakaru-type verbs (ICU 1963:151,229,286). Young and Nakajima also omit reference to wakaru-type verbs in their discussion of potentials (Young and Nakajima 1968:38-9). Niwa states that 'the potential form of a verb is the "can" or "able to" form' (Niwa 1971:265); she does not mention the problem of potentializing the wakaru-type verbs.

5.3. It is unfortunate for Western students of Japanese that more careful textbook attention has not been paid to problems of these wakaru-type verbs. For example, the English translation equivalents of pseudo-potentials often can have an English potential 'can' form. In translations of the following English strings, native English speakers might expect the parenthesized derived potential Japanese verbs to be appropriate:

(16) The book can be in your hands by three o'clock.
(*areru from aru)

(17) The make-up man can make Taro look like Lincoln.
(*niareru from niau)

(18) I can understand Japanese when you talk slow.
(*wakareru from wakaru)

5.4. Pseudo-potential V's may occur with a DATIVE actant marked by either [+NM] ga or [+L] ni and with an OBJECT actant marked by [+NM] ga. These are the same actants and markings that occur with potential V's derived from transitive V's. Compare examples (19) and (20) with (2a) and (2b), the latter two repeated here from section 2.2. (The syntactically significant [+pot] feature of wakaru does not necessarily indicate that it is semantically a 'potential' V--though it may be--but rather it indicates that it has syntactic features in common with derived potential V's.)

(19) Taroo ga (1) hon ga (2) wakatta (3)
[+NM,+DAT] [+NM,+OBJ] [+V,+pot]
'In relation to Taro (1) the understanding (1) of (3)
the book (2) existed.' (3)

(2a) Taroo ga (1) hon ga (2) kaketa (3)
[+NM,+DAT] [+NM,+OBJ] [+V,+pot]
'In relation to Taro (1) the ability (1)
to write (3) a book (2) existed.' (3)

(20) Taroo ni (wa) (1) hon ga (2) wakatta (3)
[+L,+DAT] [+NM,+OBJ] [+V,+pot]
'In relation to Taro (1) the understanding (1)
of the book (2) existed.' (3)

(2b) Taroo ni (wa) (1) hon ga (2) kaketa (3)
[+L,+DAT] [+NM,+OBJ] [+V,+pot]
'In relation to Taro (1) the ability (1)
to write (3) a book (2) existed.' (3)

5.5. The significant case characteristics of strings containing pseudo-potential V's can be summarized as follows:

(21) Pseudo-potential-V string summarized

$NP_1\{ga/ni\}$ + NP_2ga + Verb pseudo-potential
DATIVE OBJECT

The DATIVE actants of all four of the examples cited just above have the same relationship with their verb. As pointed out in section 3.3. this relationship is neither AGENT nor OBJECT (as these two occur in non-potential transitive or non-transitive V strings).

It has already been noted in section 4.5. that grammatically naive speakers, especially younger speakers at least in Tokyo, occasionally use the [+O] o postposition rather than [+NM] ga with the OBJECT actant, particularly before the pseudo-potential

V's wakaru and dekiru. This provides further evidence that these pseudo-potential V's are intuitively felt by native speakers to be similar to derived potential V's.

The COMITATIVE Case with Potential and Pseudo-potential V's

One syntactic case-related irregularity exists for potential V's and most of the wakaru-type pseudo-potential V's; both of these classes of verbs appear to have certain restrictions upon their cooccurrence with COMITATIVE actants.

6.1. Of the pseudo-potential V's listed in section 5.1., none but dekiru and possibly komaru and tsukiau may occur with a COMITATIVE case actant; many speakers do not accept any COMITATIVE with these latter two, though others somewhat grudgingly do.

6.2. It appears that many speakers accept the occurrence of a COMITATIVE actant with some potential V's only if any cooccurring DATIVE actant is marked by the topic marker wa. If such a DATIVE is marked by [+NM] ga, some speakers report a feeling that the sentence is somehow 'strange'; if, however, this DATIVE is marked by [+L] ni or ni wa most speakers reject the sentence. Among those who do accept the COMITATIVE with a ni wa DATIVE there is no clear unanimity regarding which particular potential V's may or may not occur with these two actants. It has been suggested by Yukiko Jolly (personal communication) that the archaic use of ni wa to show respect may be influencing these decisions. Because it has not been possible to pin down all that may be involved in the way of cooccurrence restrictions here, this discussion of the COMITATIVE (and the discussion of rules in section 8 related to it) can be only tentative at best.

6.3. The COMITATIVE actant always refers to an entity which is acting or existing 'together with' or otherwise semantically parallel with the referent of another NP in the activity or state described by a given predicate. The COMITATIVE actant consists of an NP followed by the [+C] case marker postposition to; it may be followed by the adverbial issyo ni 'together with'.[10] (COMITATIVE constructions can be differentiated from NP+to+NP coordinating-conjunction combinations by the fact that ya may be substituted for to in the latter strings; issyo ni can be inserted after a COMITATIVE to except where its implications of brief, instantaneous action may semantically place an unacceptable limit upon the action or state implied by the verb.)

6.4. Note the following examples which, except for the added COMITATIVE, are identical with previous examples having the same Arabic number; the starred sentences are those rejected by all or most informants.

(1b) Taroo ga (1) Hanako to (issyo ni) (2) hon o (3)
[+NM,+AGT] [+C,+COM] [+O,+OBJ]
kaita (4)
[+V,+trans]
'Taro together with Hanako wrote a book.'
1 2 2 4 3

(2c) ?Taroo ga (1) Hanako to (issyo ni) (2) hon ga (3)
[+NM,+DAT] [+C,+COM] [+O,+OBJ]
kaketa (4)
[+V,+pot]
'In relation to Taro together with Hanako
1 1 2 2
the ability to write a book existed.'
4 4 3 4

(2d) *Taroo ni (wa) Hanako to (issyo ni) hon ga
[+L,+DAT] [+C,+COM]
kaketa
[+V,+pot]

(5b) Taroo ga (1) kazoku to (issyo ni) (2) koko ni (3)
[+NM,+OBJ] [+C,+COM] [+L,+LOC]
sunda (4)
[+V,-trans]
'Taro together with [his] family lived here.'
1 2 2 4 3

(6c) ?Taroo ga (1) kazoku to (issyo ni) (2) koko ni (3)
[+NM,+DAT] [+C,+COM] [+L,+LOC]
sumeta (4)
[+V,+pot]
?'In relation to Taro together with [his] family
1 1 2 2
the ability to live here existed.'
4 4 3 4

(6d) *Taroo ni (wa) kazoku to (issyo ni) koko ni
[+L,+DAT] [+C,+COM]
sumeta
[+V,+pot]

(19a) *Taroo ga [+NM,+DAT] Hanako to (issyo ni) [+C,+COM] hon ga
wakatta [+V,+pot] (pseudo-potential)

(20a) *Taroo ni (wa) [+NM,+DAT] Hanako to (issyo ni) [+C,+COM] hon ga
wakatta [+V,+pot] (pseudo-potential)

6.5. Further study is needed to determine whether the problems of the cooccurrence restrictions raised here can be resolved sufficiently to allow generalizations to be stated. In any case, this lack of free occurrence with COMITATIVE's, sets potentials and pseudo-potentials off from the rest of the verbs of Japanese.

6.6. For speakers of English, these restrictions may pose a learning problem. For example, sometimes for pseudo-potential-V strings, English translations are given which imply that 'Taro can...'; these can be misleading, especially when English COMITATIVE's are involved. For instance, the following might be a possible translation equivalent for (19a) above: "Taro together with Hanako could understand the book'. Working from this acceptable English string idea, a native speaker of English might attempt to produce the unacceptable Japanese 'equivalent' in (19a) unless he somehow learns that the COMITATIVE cannot occur in Japanese with at least this pseudo-potential V.

6.7. Both the derived potential V's and the pseudo-potential V's are equally subject to certain other syntactic restrictions. There are no potential V's nor passive V's derivable either from already derived potential V's or from one of the pseudo-potential V's in standard Japanese. This restriction on the pseudo-potentials can be explained by the fact that they are already at least syntactically [+pot]. Further investigation may be able to establish that they also have semantic features assignable as well to the derived potentials: in other words, they may be found to be semantically 'potential' verbs as well.

The Referent of [+I] de LOCATION Actants with Potentials and Pseudo-potentials

7.1. In a further, semantic, respect involving case relationships, both the derived-potential V's and the pseudo-potential V's differ from other V's. In strings containing a non-potential ('normal') V, any LOCATION actant marked by the [+I] de case marker postposition is interpreted as denoting the location of the AGENT referent in transitive strings and of the OBJECT referent in most non-transitive strings. However, this same type of [+I] de LOCATION actant in non-transitive derived-potential-V strings and in pseudo-potential wakaru-type V strings

denotes only the location of the DATIVE referent.[11]

7.2. For example, if the [+I,+LOC] Amerika de is added to a transitive string similar to example (1), the Amerika de would refer to the location of the AGENT Taroo (Taroo ga Amerika de sono hon o kaita 'Taro in America wrote that book'). Similarly in a non-transitive string similar to example (5), Amerika de would refer to the location of the OBJECT Taroo (Taroo ga Amerika de koko ni sunda 'In America Taro lived here').

However, it is the DATIVE to which the [+I] de LOCATION refers in each of the following derived-potential and pseudo-potential strings:

(22) Taroo {ga / ni (wa)} gakkoo de eego ga
1 2 3
[+NM/L,+DAT] [+I,+LOC] [+NM,+OBJ]
kaketa
4
[+V,+pot] (derived from [+trans])
'In relation to Taro [who was] at school
1 1 2 2
the ability to write English existed.'
4 4 3 4
Compare with (2a) and (2b).

(23) Taroo {ga / ni (wa)} Amerika de koko ni
1 2 3
[+NM/L,+DAT] [+I,+LOC] [+L,+LOC]
sumeta
4
[+V,+pot] (derived from [-trans])
'In relation to Taro [who was] in America
1 1 2 2
the ability to live here existed.'
4 4 3 4
Compare with (6a) and (6b).

(24) Taroo {ga / ni (wa)} gakkoo de eego ga
1 2 3
[+NM/L,+DAT] [+I,+LOC] [+NM,+OBJ]
wakatta
4
[+V,+pot] (pseudo-potential)
'In relation to Taro [who was] in school
1 1 2 2
the understanding of English existed.'
4 3 4

The [+I] de LOCATION similarly refers to the DATIVE actant for potentials derived from movement V's, including the excep-

tional movement-V potentials toberu and agareru.

7.3. To state that this [+I,+LOC] actant refers primarily to either the location of the 'subject' or the location of the actant marked [+NM] ga would not account for the [+L] ni (wa) DATIVE's to which this particular LOCATION refers in the above cases. This semantic relationship is tied to the case relationships here, and not to either the case marker postpositions or the subject-indicating function of ga.

Potential Derivation Rule

8.1. The pertinent syntactic data involved in the derivation of potential V's from the various types of non-potential V's can be summarized separately by the following sub-rules, based upon the various 'summaries' already given. Each V is treated as a lexical item which has specifiable privileges of cooccurrence with the various case actants (NP's).

Within the large brackets representing the rule input and output verb matrices, each set of brackets represents an actant (NP) whose head N--and by extension, the entire NP--carries the case features within that set of brackets. For example, [+NM/L,+DAT] indicates a DATIVE ([+DAT]) actant which can occur with either [+NM] ga or [+L] ni.

Semantic and other actant features not pertinent to the discussion of potential derivation are subsumed under a subscripted 'copying feature' F_i. Each such subsumed feature is copied (with its specified value) from the rule input matrix to the rule output matrix; the α, β, etc., indicate that the respective values of the features so marked are unchanged by the application of this potential derivation rule. The subscripted copying features further serve to indicate which NP in the input matrix parallels which NP in the output matrix. The respective ordering of the actants included in the rules is that which is 'normal' for non-topicalized actants.

8.2. Sub-rule A: From transitive V (3) to potential V (4); see section 2.5.

$$\left[\begin{array}{l} +V \\ [+NM,+AGT,\alpha F_i],[+O,+OBJ,\beta F_j] \ ___ \end{array}\right] \quad \not\longrightarrow \quad \left[\begin{array}{l} +V \\ +pot \\ [+NM/L,+DAT,\alpha F_i],[+NM,+OBJ,\beta F_j] \ ___ \end{array}\right]$$

This rule states that from any verb (V) that can occur following both an AGENT actant which is compatible with [+NM] ga and an OBJECT actant which is compatible with [+O] o--from this type of V (i.e., a transitive V) a potential V can be derived. However, with this derived potential V, the NP which formerly

had an AGENT relationship with the non-potential V occurs in a new DATIVE relationship; furthermore, the NP which formerly had an OBJECT relationship with the non-potential V has this same OBJECT relationship with the derived potential V, but is compatible with [+NM] ga, not [+O] o.

8.3. Certain special formalisms have been used in this and the following rules. Each set of large square brackets indicates the feature matrix of the lexical item (V) under consideration in the respective inputs and outputs of each rule. In order for a given rule to apply, all of the features specified in the rule input matrix must be present in the matrix of the lexical item (V) being considered; the rule will still apply even if additional features are present in the lexical item matrix, provided that none of these additional features conflict with any feature specified in the rule matrix (two features are said to 'conflict' or to 'be in conflict' if their +/- values differ though they are otherwise identical; e.g., the features [+pot] and [-pot] are 'in conflict').

Within these large brackets, each set of inner brackets represents an actant (NP) which can occur before the blank, as in [[...],[...]___]; the blank indicates that the lexical item (V) under consideration occurs after these two NP's, each represented here by [...].

Each NP is identified by the case features present in its respective head N matrix; these features include the following: [+NM], [+O], and [+L] which represent compatibility with the case marker postpositions ga, o, and ni, respectively; [+AGT], [+OBJ], [+DAT], and [+LOC], which represent the case relationships AGENT, OBJECT, DATIVE, and LOCATION, respectively.

The subscripted copying feature F is used with α, β, etc., to indicate that all other features present in the lexical item (V) matrix are copied with their respective '+' or '-' values from the input matrix to the output matrix without change. The double-slashed arrow (—//→) indicates a lexical derivation rule.

8.4. Sub-rule B: From intransitive V (7) to potential V (8); see section 3.2.

$$\left[\begin{array}{l}+\text{V} \\ [+\text{NM},+\text{OBJ}, \alpha \text{F}_i]\ ___\end{array}\right] \quad —//\rightarrow \quad \left[\begin{array}{l}+\text{V} \\ +\text{pot} \\ [+\text{NM/L},+\text{DAT}, \alpha \text{F}_i]\ ___\end{array}\right]$$

This rule states that from any V that occurs following an OBJECT actant which is compatible with [+NM] ga, a potential V can be derived, but that the NP which was formerly the OBJECT will occur as a DATIVE actant compatible with either [+NM] ga or [+L] ni.

8.5. Sub-rule C: From intransitive movement V (11) to potential V (12); see section 4.3.

$$\left[\begin{array}{l}+V\\ [+NM,+OBJ,\alpha F_i],[+O,+LOC,\beta F_j]__\end{array}\right]$$

$$\longrightarrow \left[\begin{array}{l}+V\\ +pot\\ [+NM/L,+DAT,\alpha F_i],[+NM,+OBJ,\beta F_j]__\end{array}\right]$$

This rule states that from any V that occurs following both an OBJECT actant which is compatible with [+NM] ga and a LOCATION actant which is compatible with [+O] o, a potential V can be derived. However, the NP which was formerly the OBJECT will occur as a DATIVE actant compatible with either [+NM] ga or [+L] ni, and the NP which was formerly the LOCATION will occur as an OBJECT actant compatible with [+NM] ga. (This sub-rule repeats all that is included in sub-rule B, since both deal with intransitive V's; these rules will be collapsed later.)

8.6. Sub-rule D: From intransitive movement V (11) to exceptional potential-from-movement V (15); see section 4.7.

$$\left[\begin{array}{l}+V\\ +exception\\ [+NM,+OBJ,\alpha F_i],[+O,+LOC,\beta F_j]__\end{array}\right]$$

$$\longrightarrow \left[\begin{array}{l}+V\\ +pot\\ [+NM/L,+DAT,\alpha F_i],[+NM/O,+OBJ,\beta F_j]__\end{array}\right]$$

This rule states everything that sub-rule C does except that it requires that any input V be marked to indicate that it is an exception to the normal process which derives a potential V from a movement V; the feature [+exception] has arbitrarily been chosen in this case. In order for this rule to apply, then, the two V's involved (and any others of the same type), tobu 'fly' and agaru 'go up', will be marked in their respective lexical entries with this [+exception] feature; probably no other V will have exactly this feature in its lexical entry. The output of this rule then allows the OBJECT actant to be compatible with either [+NM] ga or [+O] o, a further difference between this rule and the one preceding it. If it could be determined that occurrences of these latter ga's and o's are governed by occurrences of ga or ni (wa) elsewhere in the same S, then this rule would need further refinement.

It has not been possible to collapse sub-rule D in any elegant way with the other sub-rules to form a single potential derivation rule (PDR); therefore, it is assumed that sub-rule D would have to be incorporated into a complete grammar basically as it is given here (but with the addition of other actants,

where appropriate). This 'Exceptional PDR' would then precede the more general PDR in the ordering of these rules so that these exceptional V's would not be subjected to the general PDR.

8.7. The above sub-rules have been over-simplified for the sake of making their primary functions more readily understood. This simplification has resulted in certain omissions, including that of parentheses around each actant (to indicate that the V's are classified on the basis of the potential occurrence of these actants with each V). Furthermore, certain other actants which may occur with some of these V's (such as DIRECTION, INSTRUMENT, TIME, RESULT, and MANNER) have been omitted from these rules because the copying features will account for both their occurrences and their marking with potential V's.

The COMITATIVE actant, however, cannot be handled by copying features, since its occurrence with certain potential V's influences the marking of any cooccurring DATIVE actant. These restrictions (pointed out but not resolved in section 6) appear to be best handled by writing a rule or rules which would allow the occurrence of a COMITATIVE actant in a potential string only if the DATIVE were 'topicalized' (occurred with wa) or marked with [+NM] ga, but not with [+L] ni--depending upon idiosyncratic features to be marked in the lexical entries for the V's involved (and then copied into the potential matrices by the copying features of the PDR). Such rules necessary to account for the COMITATIVE with potential V's have not been included here.[12]

8.8. Potential Derivation Rule (PDR).

$$\begin{bmatrix} +V \\ -pot \\ \$F_m \\ [+NM,\begin{Bmatrix}+AGT\\+OBJ\end{Bmatrix},\alpha F_i],\langle[+O,\begin{Bmatrix}+OBJ\\+LOC\end{Bmatrix},\beta F_j]\rangle___ \end{bmatrix}$$

$$\text{—//→}\quad \begin{bmatrix} +V \\ +pot \\ +der \\ \$F_m \\ ([+NM/L,+DAT,\alpha F_i]),\langle([+NM,+OBJ,\beta F_j])\rangle___ \end{bmatrix}$$

In the PDR above the feature [-pot] is included in the input matrix to prohibit the application of this rule to either a pseudo-potential V or any V which has already undergone an application of this rule; both of these V types would have the conflicting feature [+pot] in their lexical matrices, and therefore would not be subject to the application of this rule.

The first actant in the input matrix accounts for [+NM,+AGT] and [+NM,+OBJ] actants; all V's in Japanese can occur with either one or the other of these actants, and therefore this rule applies to all [-pot] V's. The second actant in each matrix is enclosed

in angled brackets (⟨ ⟩) to indicate that if such a [+O] actant occurs with a given input V, then the potential V derived from that V will have in its matrix the parallel output [+NM,+OBJ] actant, which is similarly enclosed in the PDR with angled brackets. The parentheses enclosing the actants in the output matrix indicate that the derived V potentially occurs with these actants; these actants may optionally be omitted in a given Japanese sentence (in this analysis, only the predicate--a V, Adj, or NP--is obligatory in a Japanese S).

The two new features [+pot,+der] in the derived V matrix will be used to trigger the application of appropriate morphophonemic rules to add rare/are to just these V's (but not to the pseudo-potentials, which are only [+pot] and not [+der]).

8.9. A further feature might be needed in the output matrix to block the application of the passive derivation rule with potential V's, since no potential V in Japanese can be passivized. However, this restriction has been handled elsewhere (Taylor 1971: 248) by marking the input to the passive derivation rule [-pot], thus restricting the application of the passive rule to V's which are neither derived potentials nor pseudo-potentials.

Conclusion

9.1. The lexical derivation rule used here to account for the case-related regularities which exist between the non-potential V's and the potential V's derived from them is able to account for the data presented in the preceding discussion sections, except where otherwise noted.

9.2. A comparison of the output matrix of this PDR, as applied to transitive V's (3) and (4) in 2.5. and 8.2., with the summary of the pseudo-potential-V string (21) in 5.5. shows that apart from the feature [+der] in the derived potential V matrix, the matrices for these two types of V's are the same.

9.3. Comparison of matrices of wakaru 'understanding exists' and kakeru 'ability to write exists' (non-pertinent semantic and other features have been omitted):

wakaru

```
[+V
 +pot
 ([+NM/L,+DAT]),([+NM,+OBJ])___]
```

kakeru

```
[+V
 +pot
 +der
 ([+NM/L,+DAT]),([+NM,+OBJ])___]
```

The evident similarities between these two types of V matrices are able to account for the parallels between these two V types pointed out throughout this paper. It is interesting to conjecture that there might be historical evidence somewhere that would indicate that the pseudo-potentials have their origins traceable to potential forms of transitive verbs.

9.4. The lexicase analysis used here has made it formally possible to refer simultaneously to both the case relationships and the case markers that cooccur with the various V types under consideration. This possibility has in turn enabled case-related potential-V data to be discussed in a way which reflects native-speaker intuitive judgments as to the 'roles' being played by the referents of the actants occurring with these V's.

Footnotes

[1] Yukiko Jolly, Shōzō Kurokawa, Yutaka Kusanagi, and other colleagues of the University of Hawaii Department of East Asian Languages have contributed examples, suggestions, and helpful criticisms during the writing of this article.

[2] The case relationships referred to here are the minimal set defined by this author in Case in Japanese, pp. 37-47. These relationships (and their identifying syntactic features) are TIME [+TIM], LOCATION [+LOC], AGENT [+AGT], OBJECT [+OBJ], INSTRUMENT [+INS], COMITATIVE [+COM], DIRECTION [+DIR], DATIVE [+DAT], RESULT [+RES], and MANNER [+MAN]. The case marker postpositions are also assigned identifying syntactic features, such as ga [+NM] ('nominative'), o [+O], de [+I], ni [+L], to [+C], and e [+D].

[3] The particle wa is not a case marker postposition, but rather is a 'topic marker' which cannot normally cooccur with either ga (the [+NM] case marker) or o (the [+O] case marker). Therefore, wa is not included in much of the present discussion. Neither the obvious implications of contrast, exclusiveness, etc., in occurrences of ga nor those of 'topicalization', 'theme', prior identification, etc., in occurrences of wa are indicated in the English glosses of example sentences.

[4] In this and other examples which have ga instead of the more frequent wa, the context of situation is assumed to be one in which Taroo, for example, is being singled out from others, perhaps in answer to a dare ga 'who' question. These ga example sentences more clearly indicate the case data being illustrated than do the parallel sentences with wa and are therefore used in preference to the sometimes more ambiguous wa sentences.

[5] This 'thematic' DATIVE differs from other 'normal' DATIVE's in that it cannot occur with just ni, but must occur with either ni wa or wa; other 'normal' DATIVE's may occur with just ni or with ni wa, but do not usually occur with wa alone. In most other respects all DATIVE's seem to be identical. However, the 'thematic' DATIVE may occur with Predicate (Pred) types which do not usually allow the occurrence of the 'normal' DATIVE, such as Adjective-Pred's, Noun Phrase-Pred's ('predicate nominatives'),

and non-DATIVE V's, such as yomu 'read' (which for conservative speakers does not allow

*Mitiko ni hanasi o yonda '[Someone] read a story to Michiko').
1 2 3 3 2 1

This 'thematic' DATIVE also appears to be related to the treatment of strings such as the (in)famous

Zoo wa hana ga nagai 'In relation to the elephant, the
1 2 3 1 1
nose is long'.
2 3

Still, in every occurrence of the DATIVE, there is the common interpretation of the referent of the DATIVE actant as that (usually animate) which is somehow indirectly related to the verbal activity or state. The exact semantic interpretation of this relationship can be deduced only by looking at the independent semantics of the lexical items within the DATIVE actant and then at the situational context in which the string occurs.

[6] This [+NM] ga, besides being a case marker postposition, also serves as the subject marker in Japanese sentences; in non-topicalized, non-passive strings it normally occurs according to a subject selection hierarchical arrangement. Informally stated, this hierarchy can be given as the following: (1) If an AGENT occurs, it is marked [+NM] (may occur with ga). (2) In the absence of an AGENT, the OBJECT may be similarly marked [+NM] (ga). (3) In the absence of both AGENT and OBJECT, the DATIVE may be so marked. However, especially with potentials and pseudo-potentials even in the presence of an OBJECT, the DATIVE may be marked [+NM] ga for purposes of showing emphasis, uniqueness, etc. For further discussion of subject marking, including the subject marking in passive strings, see Taylor 1971:50-53,245. Sasaki has also touched upon subject marking in his discussion of primarily the Japanese causative and passive; his conclusions are basically the same as those given here, although he does not specifically treat potential verbs (Sasaki 1971:74).

[7] This example is not acceptable to some speakers, who may consider it characteristic of the speech of less-educated, younger speakers, as noted in section 4.5.

[8] Although these same two movement verbs tobu and agaru (and possibly others) are very similar to aruku 'walk', unlike aruku they can occur with a [+D] e DIRECTION actant. For example,

Hawai e	tonda
1	2
[+D,+DIR]	[+V,-trans]

'[Someone] flew toward Hawaii'.
2 1 1

Since some speakers do not accept this occurrence of an NP+e with tobu or agaru, it appears that both tobu and agaru (and possibly other movement V's) are grammatically innovative in at least this one respect.

9 Young and Nakajima may have these V's in mind when they mention (but do not illustrate) that 'recently people have a tendency to use o instead of ga or wa in the potential' (Young and Nakajima 1968:39).

10 This COMITATIVE to is distinguished from other to's in Taylor 1971:121-6,317-21, and in Taylor Ms. Statements made in these previous works indicating that the COMITATIVE does not occur at all with potential verbs were based upon the fact that most speakers of standard Japanese reject potential-V sentences containing both a COMITATIVE and a DATIVE which occurs with ni or ni wa. However, their often grudging acceptance of a ga DATIVE and their general acceptance of a wa DATIVE with potentials of some V's has been interpreted in this present discussion as necessitating a modification of these previous statements. It remains a fact that such speakers readily accept a COMITATIVE with all Japanese V's except certain of those which belong to just the two classes under discussion here: pseudo-potentials and potentials. Therefore in this somewhat limited respect, pseudo-potentials and potentials as verb subclasses are syntactically similar.

11 Even in transitive strings which omit both AGENT and OBJECT actants, the [+I] de LOCATION does not primarily denote the location of a DATIVE. For example,

Amerika de	Mitiko ni	okutta
1	2	3
[+I,+LOC]	[+L,+DAT]	[+V,+trans]

'[Someone who was] in America sent [something] to Michiko
1 3 2
[wherever she was]'.

Therefore it would not be correct to say simply that [+I] de LOCATION actants refer to an AGENT if present, otherwise to a DATIVE or to an OBJECT actant.

[12] An initial attempt to illustrate how a lexical derivation rule could account for the potential of Japanese verbs by this author (Taylor 1971:224-7) did not incorporate the information covered here by the 'Exceptional PDR'. Also, the inclusion of the COMITATIVE in that initial attempt was based upon the insufficient data noted in footnote 10 above.

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